Debunking the Myths About Nuclear Energy

by Marsha Freeman

As the U.S. Congress debates energy policy, *EIR* provides this summary review of the answers to frequently raised objections to the only feasible solution to the U.S. and worldwide power shortage, nuclear energy.

Q: Aren't nuclear power plants dangerous to public health?

A: In fact, there has never been *any* nuclear accident in the United States that has endangered the health or welfare of the public. The worst American accident, at the Three Mile Island nuclear plant in Pennsylvania, in 1979, injured no one.

Q: What about the accident at the Chernobyl nuclear plant in Ukraine in 1986?

A: The severity of that accident was a function of a poor reactor design, and inadequate training of plant personnel. In the United States, oversight by the Nuclear Regulatory Commission provides the standards for reactor design and plant operation, which has contributed to our excellent nuclear power plant safety record.

The new generation of nuclear power plant designs, already being built internationally, feature passive safety systems, which simply shut the plant down if there is an operator error or equipment failure.

By comparison, during 2006, more than 5,000 miners died in China, during the production of the more than 1 billion tons of coal that power its economy. The health of the public in China's cities is also endangered, by the pollution caused by the burning of fossil fuels.

As far as vulnerability to "terrorist" attacks is concerned, there is no public infrastructure that is as well protected as nuclear power plants. There is no scenario under which a release of radiation (which effect in low dosages is, in any case, completely exaggerated), would significantly affect public health.

Q: What do we do with the radioactive waste from nuclear power plants?

A: There is no such thing as nuclear "waste." This is a term used in popular parlance by anti-nuclear ideologues to frighten the public, and its elected representatives. More than 95% of the fission products created in commercial power plants can be reprocessed and recycled. The spent fuel from a typical 1,000 megawatt nuclear plant, which has operated over 40 years, can produce energy equal to 130 million barrels of oil, or 37 million tons of coal.

In reprocessing, fissionable uranium-235 and plutonium are separated from the high-level fission products. The plutonium can be used to make mixed-oxide fuel, which is currently used to produce electrical power in 35 European nuclear reactors. The fissionable uranium in the spent fuel can also be reused. From the remaining 3% of high-level radioactive products, valuable medical and other isotopes can be extracted.

Q: What about the stalemate over burying radioactive spent fuel in the Yucca Mountain geological depository in Nevada?

A: This is an irrational program which is a result of the success of the anti-nuclear nonproliferation lobby in the 1970s. The Department of Energy's Global Nuclear Energy Partnership proposes to spend billions of dollars, and more than a decade in research and development, to develop new, "proliferation proof," reprocessing technologies, under the guise of preventing the spread of plutonium and nuclear weapons, and bury the spent fuel at Yucca Mountain, in the meantime. This delay is unnecessary. Today, Britain, France, Russia, India, Japan, and China reprocess spent nuclear fuel, and technology today can be used here in the U.S. to eliminate the "nuclear waste" problem, in the short term.

Q: But if the United States goes ahead now with reprocessing, doesn't making this technology available increase the risk that other nations will develop nuclear weapons?

A: No nation has ever developed a nuclear weapon from a civilian nuclear power plant. If a nation has the intention to develop nuclear weapons, it must obtain the specific technology to do so. Israel is an example of a nation that has no civilian nuclear power plants, but has developed nuclear weapons.

The nonproliferation argument—that controlling technology will reduce the risk of weapons proliferation—is an historically demonstrable false one. Nations make decisions based on their security and military requirements, not on which technologies are available.

Q: Isn't it the case that nuclear energy is more expensive than fossil, or "alternative" fuels?

A: The radical escalation in the cost of building nuclear power plants in the late 1970s and 1980s was the result of political actions, not economics. Some plants projected to cost less than $1 billion ended up costing ten times that amount, because anti-nuclear "environmentalists," and legal intervenors were given free rein, using specious and ideological arguments, to delay plant construction for years, sometimes, for decades. Where there has been no political interference, new nuclear power plants have been built in 38 months, on schedule, and on budget, such as in Japan.

While it does require less up-front capital investment to build a gas-fired power plant than a nuclear plant, the operational cost over the 30-or-more-year lifetime of the gas plant swings heavily in favor of nuclear power. And compared to coal, the overall economy is not taxed to transport millions of tons of fuel.

In 2002, faced with increasing demand, and after careful economic analysis, the Tennessee Valley Authority decided that it was more economical to spend $1.8 billion to refurbish its Browns Ferry nuclear plant, which had been shut down since 1986, than build a gas-fired unit.

So-called renewable energy sources, such as solar and wind, are not only inefficient because their energy is so dispersed, (see *EIR* Jan. 19) for discussion of energy flux density), they are so unreliable that back-up power supplies (fossil or nuclear) must be available for any time it is not sunny or windy. So, not only do consumers bear the expense of inefficiency, the entire electric grid system pays the price of having to provide stand-by redundant power-generating capacity to ensure grid reliability.

It was determined in the 1970s, that alternative, "soft" energy sources would only be competitive with fossil and nuclear plants, when energy costs reached a $100/barrel oil-equivalent price. To bring these uneconomical sources on line before then, political decisions were made to spend $20 billion in Federal subsidies for alternative energy, while Federal expenditures for advanced nuclear technologies came to a screeching halt. It has been this irrational investment policy that has made nuclear power "expensive."

Q: How can the large capital cost of new nuclear power plants be financed?

A: There must be a sea-change in economic policy, where Lyndon LaRouche's comprehensive approach of fiscal reorganization, and the reconceptualization of the Federal budget on the basis of needed capital investment, are the guidelines.

The provision of reliable and affordable electricity, as recognized by President Franklin Roosevelt more than 50 years ago, is not a luxury, but a necessity. For this reason, in the 1930s, the electric utility industry was regulated by Federal and state governments, to protect consumers from financial manipulation and fraud, and to ensure that affordable power would be available to every home, farm, and factory.

The deregulation of the U.S. utility industry, beginning in the early 1990s, has nearly destroyed an electrical energy system that was the envy of the world. Utility companies must have access to low-interest, long-term credit, assurance from government regulators and policy-makers that "environmental" sabotage and delay will not be tolerated; and that a crash effort will be made to rebuild the nuclear manufacturing industry, which has nearly disappeared. These must be approached as a national policy, not dependent upon Wall Street financiers, but by directing resources into infrastructure through fiscal policy.

Q: But the immediate energy crisis is our dependence upon petroleum. How does nuclear energy alleviate that problem?

A: In two ways. In the long term, the only sensible and renewable replacement for petroleum-based liquid fuels is hydrogen. When next-generation, high-temperature nuclear fission reactors (which are under development now in South Africa and China) come on line, splitting water into its constituents elements will make hydrogen available as a versatile and universally available transportation fuel.

In the near term, petroleum consumption could be dramatically reduced through large-scale investment in mass transit and rail. Our decrepit diesel-fueled rail system should be electrified. Half of the nation's truck-hauled freight should be taken off the road and put on the rails. Millions of miles, and hours, of commuters driving automobiles should be eliminated, by using public transportation. A crash program to build conventional intra-city commuter trains, and magnetic levitation (maglev) systems for inter-city transport, would replace finite and polluting fossil fuel-based transport with nuclear power.

Q: But isn't it the case that there is broad opposition to new nuclear plants, and that citizens do not want plants built in "their backyard?"

A: The opposite is the case. Over the past two years, as utilities have indicated they will be applying to the Nuclear Regulatory Commission for licenses to build new nuclear plants, communities have been competing with each other, to offer attractive packages to companies, in order to encourage them to build plants in their "backyard."

Last year, resolutions were passed by communities in Louisiana; Oswego, New York; and Fort Gibson, Mississippi, to support the addition of new nuclear reactors to existing nuclear sites. The states of Georgia, Utah, South Carolina, and South Dakota have passed resolutions supporting the building of new nuclear power plants.

At the Calvert Cliffs Nuclear Power Plant, just a stone's throw from Washington, D.C., the Board of County Commissioners voted last August to offer $300 million in tax breaks to the Constellation Energy Group to add a third reactor at the Calvert Cliffs site. The plant is the largest employer in

that Maryland county, and the $16 million it pays in taxes each year contributes 9% of the county's total tax revenue.

In September 2006, Bisconti Research Inc. released the results of a telephone survey, of a nationally representative sample of 1,000 adults, about nuclear energy. The survey found that nearly 70% of those queried support nuclear power, and 68% of those who live near an operating plant, support building a new nuclear reactor at the existing site.